University of Windsor
Department of Electrical and Computer Engineering
ELEC 8590 Physical *Design Automation for VLSI & FPGAs*
Winter 2021

Class Hours: Tuesday 10:00 AM to 12:50 PM, Online on Blackboard

Professor: Dr. Mohammed Khalid
Email: mkhalid at uwindsor dot ca
Course Office Hours: By appointment on Microsoft Teams; contact by email encouraged at any time.

COURSE DESCRIPTION
Introduction to back end CAD flow for VLSI and FPGAs; algorithms and CAD tools for technology mapping, floorplanning, partitioning, placement and routing; exposure to timing analysis and timing-driven layout; assignments will involve use of academic and/or industrial CAD tools as well as development of simple CAD tools for specific layout tasks. The instructor will provide unique insights into key issues in the area of design automation based on his research and development experience in academia and industry.

COURSE PREREQUISITES
Consent of the instructor. There is no formal prerequisite but the students should have some background in software development (C or C++, basic data structures and algorithms), digital design and basic VLSI design and layout concepts.

TEXTBOOK
There is no required textbook. Parts of the following book will be useful but not required. Most of the course material will be obtained from easily available survey papers and research papers (download and print using links to IEEE and ACM web sites, provided by the University Library).
Naveed Sherwani, *Algorithms for VLSI Physical Design Automation*, Third Edition, November 1998, Kluwer Academic Publishers, ISBN 0-7923-8393-1.

GRADING
Grade point distribution (total 100 points): Programming assignments/exercises/report (75), Final Exam (25).

Instructor's Policy on Recording Lectures
Lectures in the Blackboard virtual classroom will be recorded. The recordings will be posted in the course Blackboard site, after the lecture. Students are **not** permitted to record the lectures.
Any recording of lectures or GA or guest lecturer/classmate presentations by students can be used only for the purposes of private study by the individual student. The recording (including any transcriptions or any translation to any other form) cannot be shared, distributed, emailed, posted online or otherwise disseminated or communicated in any

form or to any other person (including fellow classmates) unless written consent has first been obtained from the instructor or presenter.
Students who record a lecture after the instructor has prohibited such recordings, or who record a guest lecturer or classmate presentation or performance without the written consent of the presenter, or who disseminate a recording without the explicit written permission from the instructor or presenter will be subject to the University's misconduct policies, at minimum.

Intellectual Property
Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Copyright Act, RSC 1985, c C-42. Course materials such as PowerPoint slides and lecture recordings are made available to you for your own study purposes. These materials cannot be shared outside of the class or "published" in any way. Posting recordings or slides to other websites without the express permission of the instructor will constitute copyright infringement.

Course web site: will be available on Blackboard